Response to rejections under Section 102:

Claims 1 and 5 are rejected under 35 USC 102(b) as being anticipated by Colinet. However, claims 1 and 5 include the limitations of "a consumable insert comprising a metal-comprising material and melting point depressant material, the melting point depressant material having a concentration that is greater proximate a center region of the consumable insert than proximate an exterior surface region of the consumable insert." In contrast, Colinet contains no melting point depressant material. The particles 2, 9 of Colinet are flux material particles, and it is well understood in the materials joining art that flux material and melting point depressants are different materials performing different functions. Furthermore, the flux particles 2 of Colinet are evenly distributed throughout the welding rod 1, as can be clearly seen in FIG. 2 of Colinet, rather than being concentrated in a center region as required by the present claims. Accordingly, Colinet teaches away from claims 1 and 5 and does not support the rejection under 35 USC 102, and therefore, this rejection should be withdrawn.

Claims 7-9 are rejected under 35 USC 102(b) as being anticipated by Nadkarni. However, claims 7-9 contain the limitations of "a sheath having a desired ribbon shape; and particles of material exhibiting a ductility of less than 18% tensile elongation contained by the sheath." In contrast, Nadkarni is a powdered metal composite formed by compacting two different types of powders which are consistent throughout its cross-section and does not contain a distinct sheath or particles of a material contained within a sheath. The two different powder materials used by Nadkarni are blended and then compacted (see column 1, lines 30-40) and then either extruded or rolled to a flat billet (column 8, lines 14-25), thus precluding the possibility of there being a sheath and particles of material contained by the sheath. Accordingly, Nadkarni fails to teach all of the limitations of claims 7-9 and does not support the rejection under 35 USC 102, and therefore, this rejection should be withdrawn.

Claims 7-9, 11, 12, 22 and 24 are rejected under 35 USC 102(b) as being anticipated by Kear. However, each of these claims contains the limitation of a sheath and "particles of material exhibiting a ductility of less than 18% tensile elongation contained by the sheath." In contrast, the material of Kear contains no particles at all. Kear describes a multi-layer material including an amorphous layer 10, 10a, 10b and a crystalline layer 12, 12b. Neither of these layers contain particles of material, but rather are formed by the quenching of liquid material or by physical or chemical deposition (column 2, lines 43-45). However, in no place does Kear describe particles of material. Kear achieves a ductile product by having at least one layer of amorphous material, which provides the desired ductility. In contrast, the invention of claims 7-9, 11, 12, 22 and 24 achieves the desired ductility within the sheath material, allowing the particular material to be of any low ductility material. This avoids the difficult and sometimes impossible requirement of forming the amorphous material, which is important because Kear admits that it may not be possible to form some materials as amorphous materials (column 2, line 67-68). Accordingly, Kear fails to teach all of the limitations of claims 7-9, 11, 12, 22 and 24 and does not support the rejection under 35 USC 102, and therefore, this rejection should be withdrawn.

Claims 1-4 are rejected under 35 USC 102(b) as being anticipated by Chang. However, claims 1-4 contain the limitations of "consumable insert comprising a metal-comprising material and melting point depressant material, the melting point depressant material having a concentration that is greater proximate a center region of the consumable insert than proximate an exterior surface region of the consumable insert." In contrast, the brazing strips or foils of Chang contain no melting point depressant material. The product of Chang is used for brazing rather than transient liquid phase bonding (TLP) and therefore no melting point depressant is needed. Chang describes various layers of titanium intermixed with layers of copper, nickel and zirconium, none of which are melting point depressant materials. The Examiner interprets Chang as teaching "a melting point depressant (Ni)", however, as is well known in the art, nickel (Ni) is a structural material and not a melting point depressant material (see, for example, the first paragraph of the attached web page http://www.materialsdevelopment.com/foils_brazes.htm titled "Foils & Brazes" which confirms the understanding in the art that common melting point depressants include boron and silicon for use with nickel-based brazing alloys.) Accordingly, Chang fails to teach all of the limitations of claims 1-4 and does not support the rejection under 35 USC 102, and therefore, this rejection should be withdrawn.

Response to rejections under Section 103:

Claims 14-17 and 21 are rejected under 35 USC 103(a) as being unpatentable over Chang in view of Kear. However, these claims include the limitation of "forming a unitary consumable insert comprising a metal-comprising material and melting point depressant material, the melting point depressant material having a melting point depressant concentration that is greater proximate a center region of the insert than proximate an exterior surface region of the insert." In contrast, as described above, Chang fails to teach or suggest a melting point depressant material, and the combination of Chang and Kear fails to teach or suggest a concentration of melting point depressant material that is greater proximate a center region of the insert. Accordingly, the combination of Chang and Kear fails to teach or suggest all of the limitations of claims 14-17 and 21 and does not support the rejection under 35 USC 103, and therefore, this rejection should be withdrawn.

Claims 18-20 are rejected under 35 USC 103(a) as being unpatentable over Chang in view of Kear and further in view of Wissler. However, claims 18-20 include the limitations of "depositing particles of the melting point depressant into a U-shaped plate of sheath material; forming the U-shaped plate into a tube; and flattening the tube into a ribbon shape having the particles of the melting point depressant in the center region and having the sheath material in the exterior surface region." As discussed above, Chang fails to describe a melting point depressant material and Kear fails to describe particles of material contained in a sheath. The addition of Wissler fails to correct these deficiencies of the primary references. Accordingly, the combination of Chang, Kear and Wissler fails to teach or suggest all of the limitations of claims 18-20 and does not support the rejection under 35 USC 103, and therefore, this rejection should be withdrawn.

Conclusion

The foregoing arguments demonstrate the lack of a *prima facie* support in the prior art for each of the prior art rejections. These arguments are not intended to include a complete listing of all of the elements of each claim that contribute to novelty and nonobviousness. Other elements of the various claims are lacking in the cited art. Since the burden of establishing a proper basis for claim rejections remains with the USPTO, the Applicants do not attempt to provide a complete listing of such elements in this paper.

For the foregoing reasons, it is respectfully submitted that the rejections set forth in the outstanding Office Action are inapplicable to the present claims. Although none are believed to be necessary, the Commission is requested to grant any extensions of time required to enter this paper, and is hereby authorized to charge any appropriate fees due in connection with this paper, including the fees specified in 37 C.F.R. §§ 1.16 (c), 1.17(a)(1) and 1.20(d), or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

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